

FIG.1

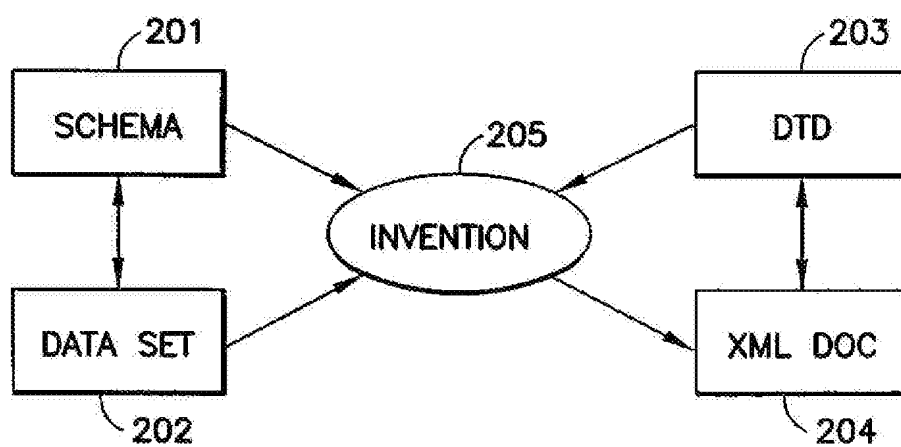


FIG.2

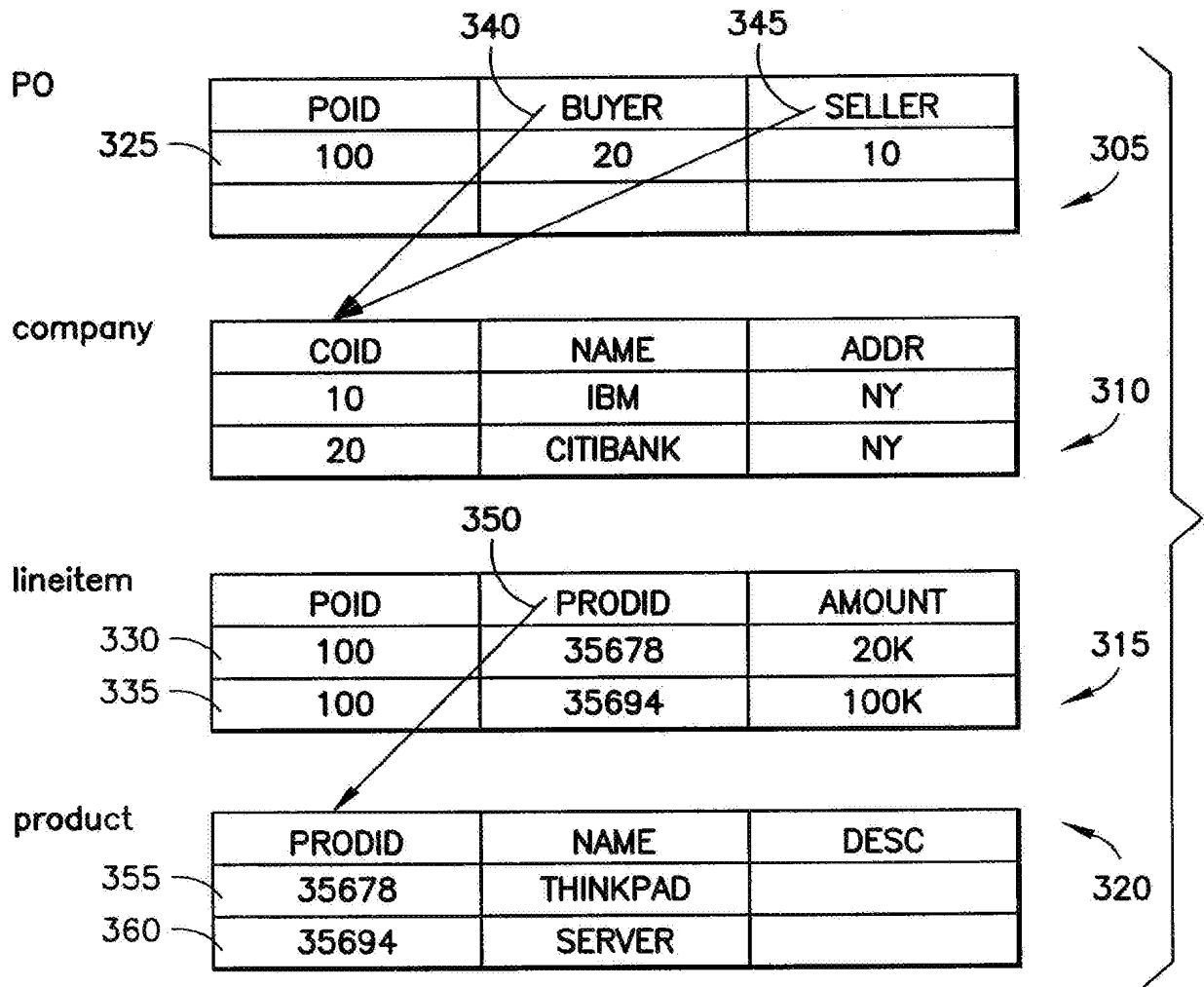


FIG.3a

```

301 <!DOCTYPE PO [
302 <IELEMENT PO (id, buyer, seller, (lineitem)*)>
303 <IELEMENT id (#PCDATA)>
304 <IELEMENT buyer (address)>
323 <!ATTLIST buyer
      name CDATA #REQUIRED>
304 <IELEMENT seller (address)>
324 <!ATTLIST seller
      name CDATA #REQUIRED>
311 <IELEMENT address (#PCDATA)>
307 <IELEMENT lineitem (prodname, amount)>
308 <IELEMENT prodname (#PCDATA)>
310 <IELEMENT amount (#PCDATA)>
    ]>
320

```

FIG.3b

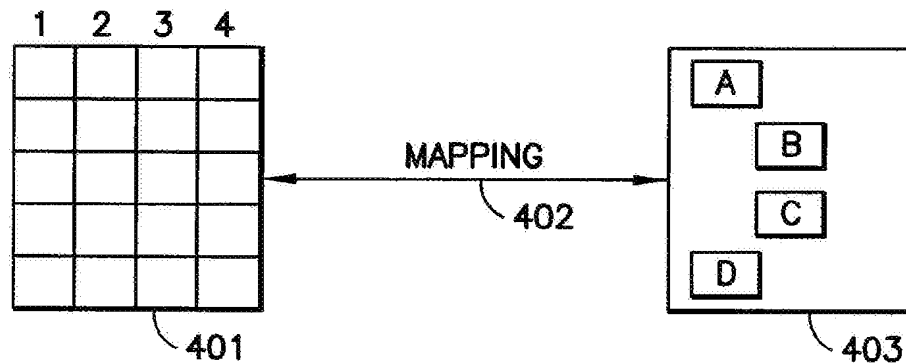


FIG.4

```

<IDOC TYPE PO [
  <!ELEMENT PO (id, buyer, seller,
    500 (lineitem)*::w:= row(lineitem, poid, PO.poid(r)) )>
    ::r:=row(PO, poid, x) 510
  <!ELEMENT id (#PCDATA:PO.poid(r))> 515
  <!ELEMENT buyer (address)> ::s:= row(company, id PO.buyer(r)) 535
  <!ATTLIST buyer
    name CDATA #REQUIRED :company.name(s)> 520
  <!ELEMENT seller (address)> ::s:= row(company, id, PO.seller(r)) 540
  <!ATTLIST seller
    name CDATA #REQUIRED :company.name(s)>
  <!ELEMENT address (#PCDATA :company.addr(s))>
  <!ELEMENT lineitem (prodname,
    545 amount)> ::v:= row(prod, prodid, lineitem.prodid(w))
  <!ELEMENT prodname (#PCDATA :product.prodname(v))>
  <!ELEMENT amount (#PCDATA :lineitem.amount(w))>
]>

```

FIG.5

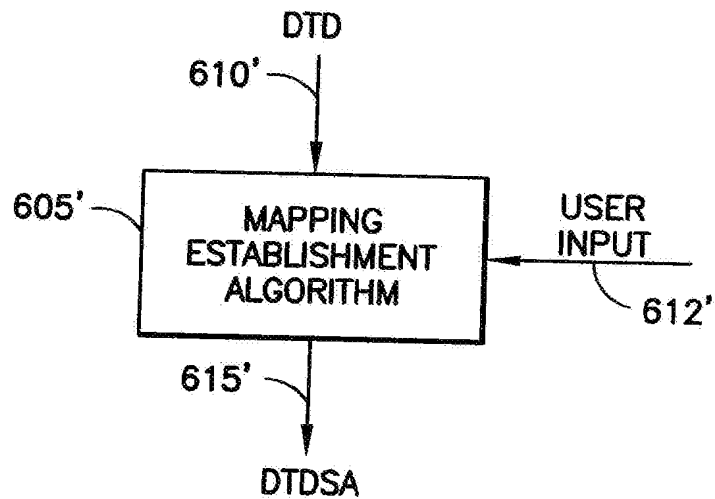


FIG. 6a

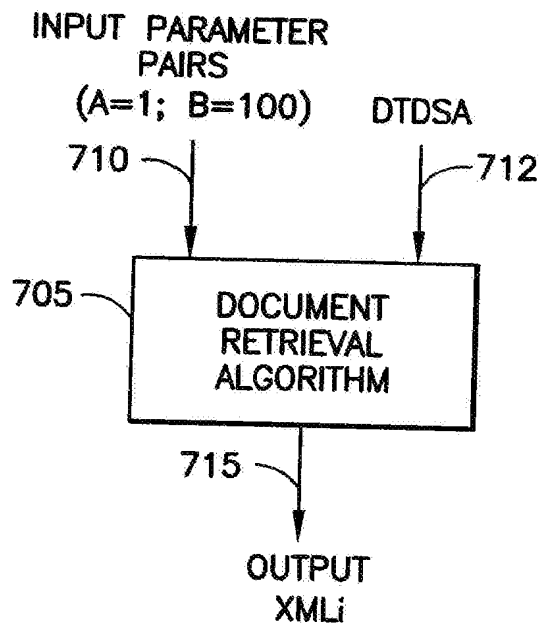


FIG. 7a

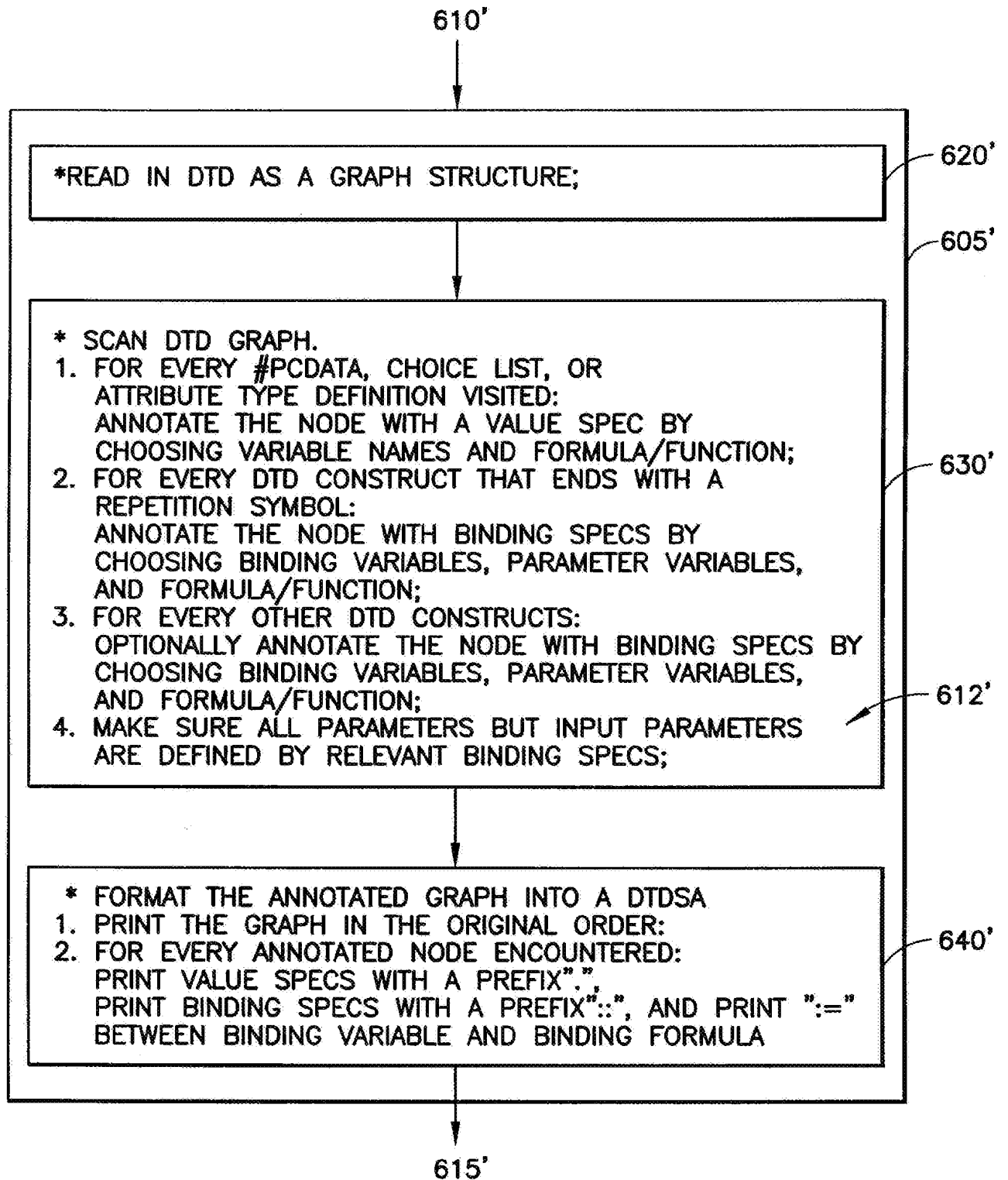


FIG.6b

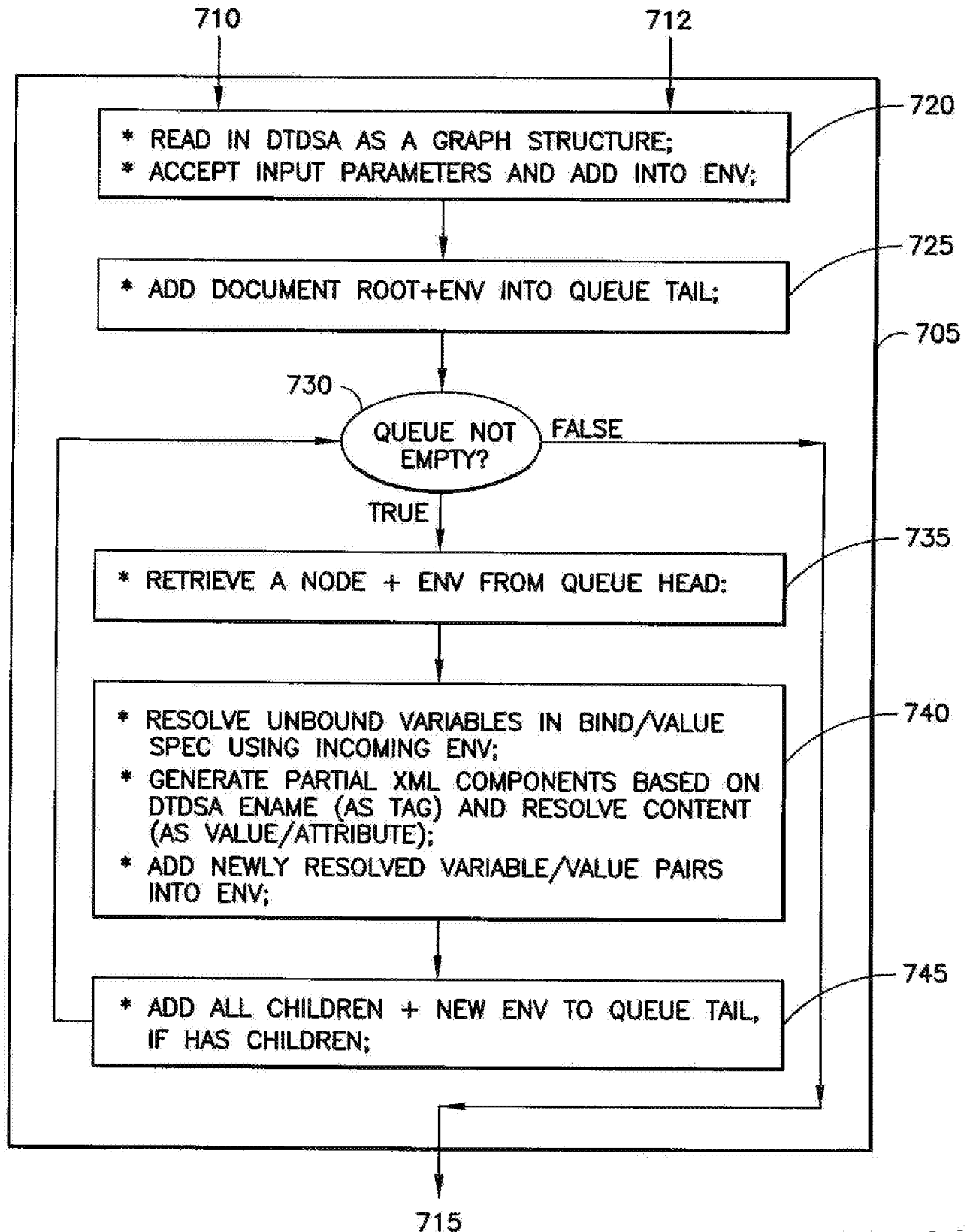


FIG.7b

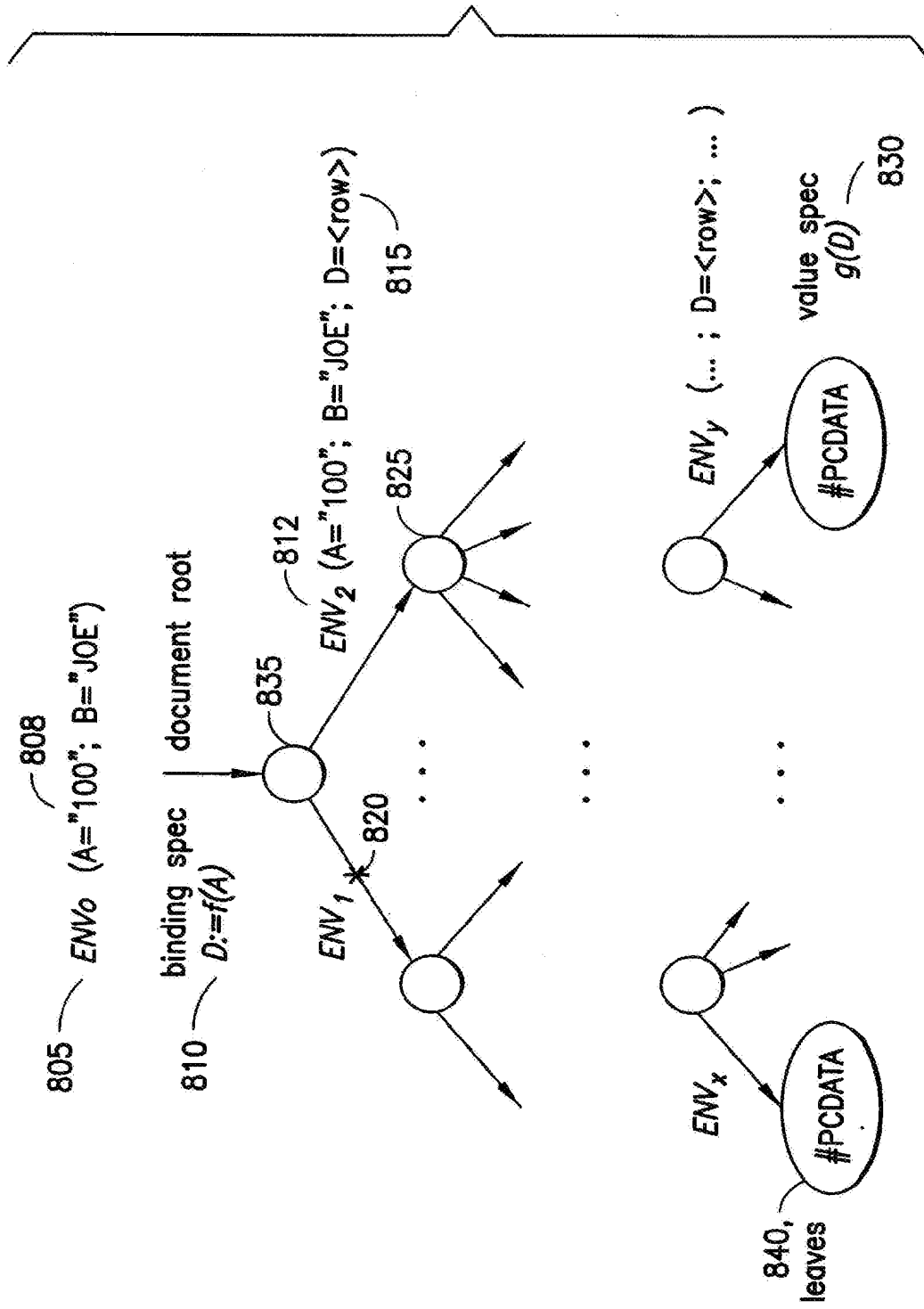


FIG.8



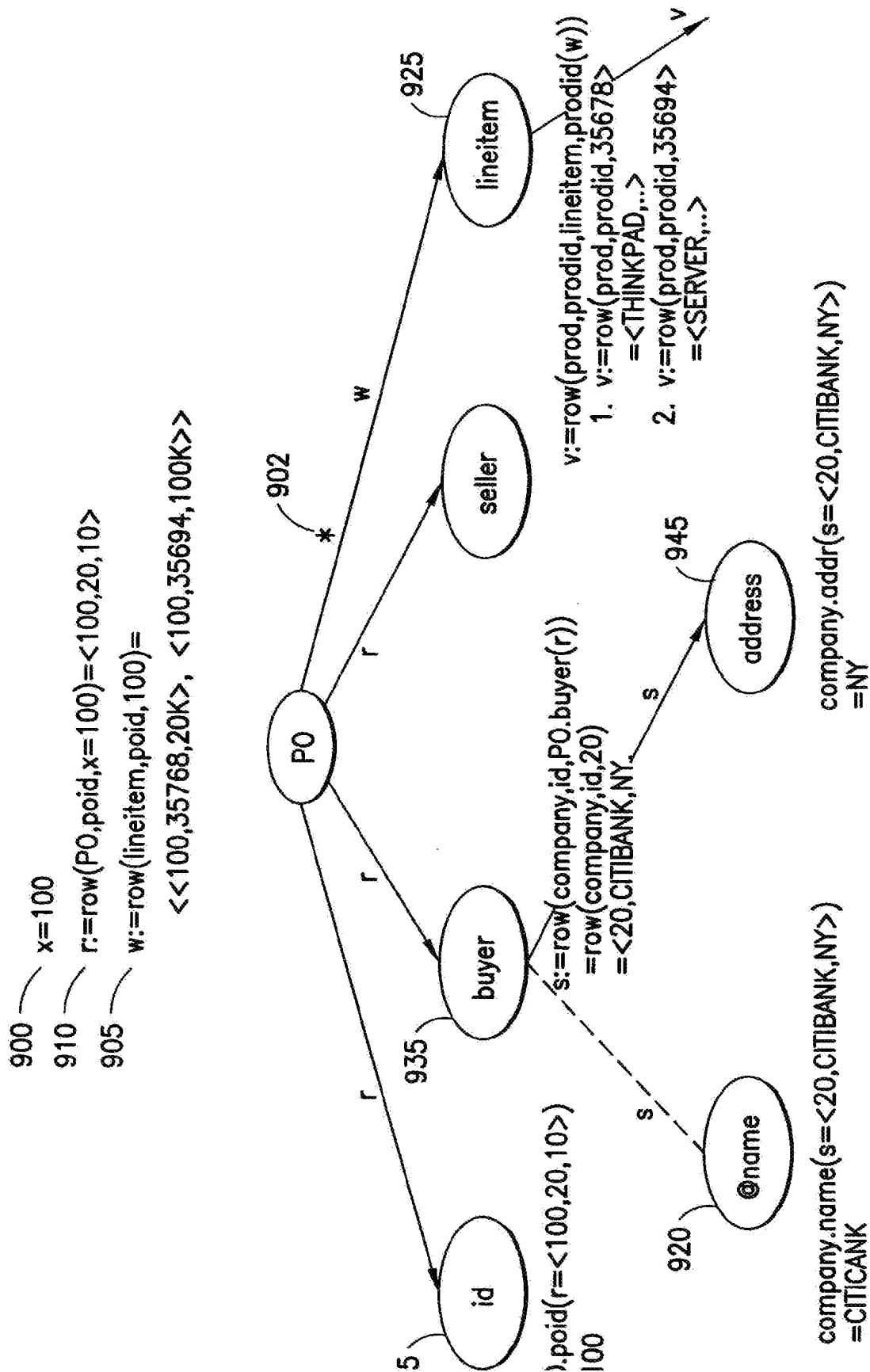


FIG.9

```
<PO>
  <id> 100 </id>
  <buyer name="CITIBANK">
    <address> NY </address>
  </buyer>
  <seller name="IBM">
    <address> NY </address>
  </seller>
  <lineitem>
    1010 <prodname> THINKPAD </prodname>
        <amount> 20K </amount>
  </lineitem>
  1015 <lineitem>
        <prodname> SERVER </prodname>
        <amount> 100K </amount>
  </lineitem>
</PO>
```

FIG.10